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ARMY ELECTRONICS RESEARCH AND DEVELOPMENT COMMAND WS--ETC F/6 4/2  
19304A GSR5, MISSILE NUMBERS 1072 AND 1124, ROUND NUMBERS V-94 --ETC(U)  
DEC 79

UNCLASSIFIED

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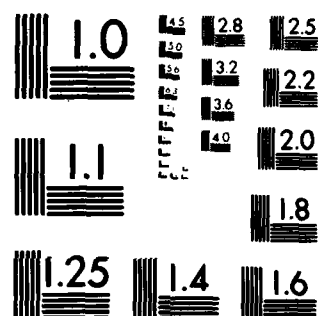
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MICROCOPY RESOLUTION TEST CHART  
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REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER DR 1100	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) 19304A GSRS Missile Number 1072 and 1124 Round Number V-94 and V-95		5. TYPE OF REPORT & PERIOD COVERED
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s)  White Sands Meteorological Team		8. CONTRACT OR GRANT NUMBER(s)  DA Task 1F665702D127-02
9. PERFORMING ORGANIZATION NAME AND ADDRESS		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS US Army Electronics Research & Development Cmd Atmospheric Sciences Laboratory White Sands Missile Range, New Mexico 88002		12. REPORT DATE December 1979
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)  US Army Electronics Research & Development Cmd Adelphi, MD 20783		13. NUMBER OF PAGES 15
		15. SECURITY CLASS. (of this report)  UNCLASSIFIED
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report)		
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18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number)		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number)  Meteorological data gathered for the launching of the 19304A GSRS, Missile Number 1072 and 1124, Round Number V-94 and V-95 are presented in tabular form		

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## INTRODUCTION

19304A GSRS, Missile Numbers 1072 and 1124,  
Round Numbers V-94 and V-95, were launched from LC-33,  
White Sands Missile Range (WSMR), New Mexico, at 1545:01 and 1545:06 MST  
on 07 December 1979. The schedule launch times were 1515 and  
1515:04 MST.

## DISCUSSION

Meteorological data were recorded and reduced by the White Sands Meteorological Team, Atmospheric Sciences Laboratory (ASL), White Sands Missile Range, New Mexico. The data were obtained by the following methods:

### 1. Observations

#### a. Surface

(1) Standard surface observations to include pressure, temperature ( $^{\circ}\text{C}$ ), relative humidity, dew point ( $^{\circ}\text{C}$ ), density ( $\text{gm/m}^3$ ), Wind direction and speed, and cloud cover were made at the LC-33 Met Site at T-0 minutes.

(2) Anemometer data were provided from existing pole-mounted and tower-mounted anemometers at LC-33. Monitor of wind speed and direction from one anemometer was also provided in the launch control room.

#### b. Upper Air

(1) Low level wind data were obtained from RAPTS T-9 pibal observation at:

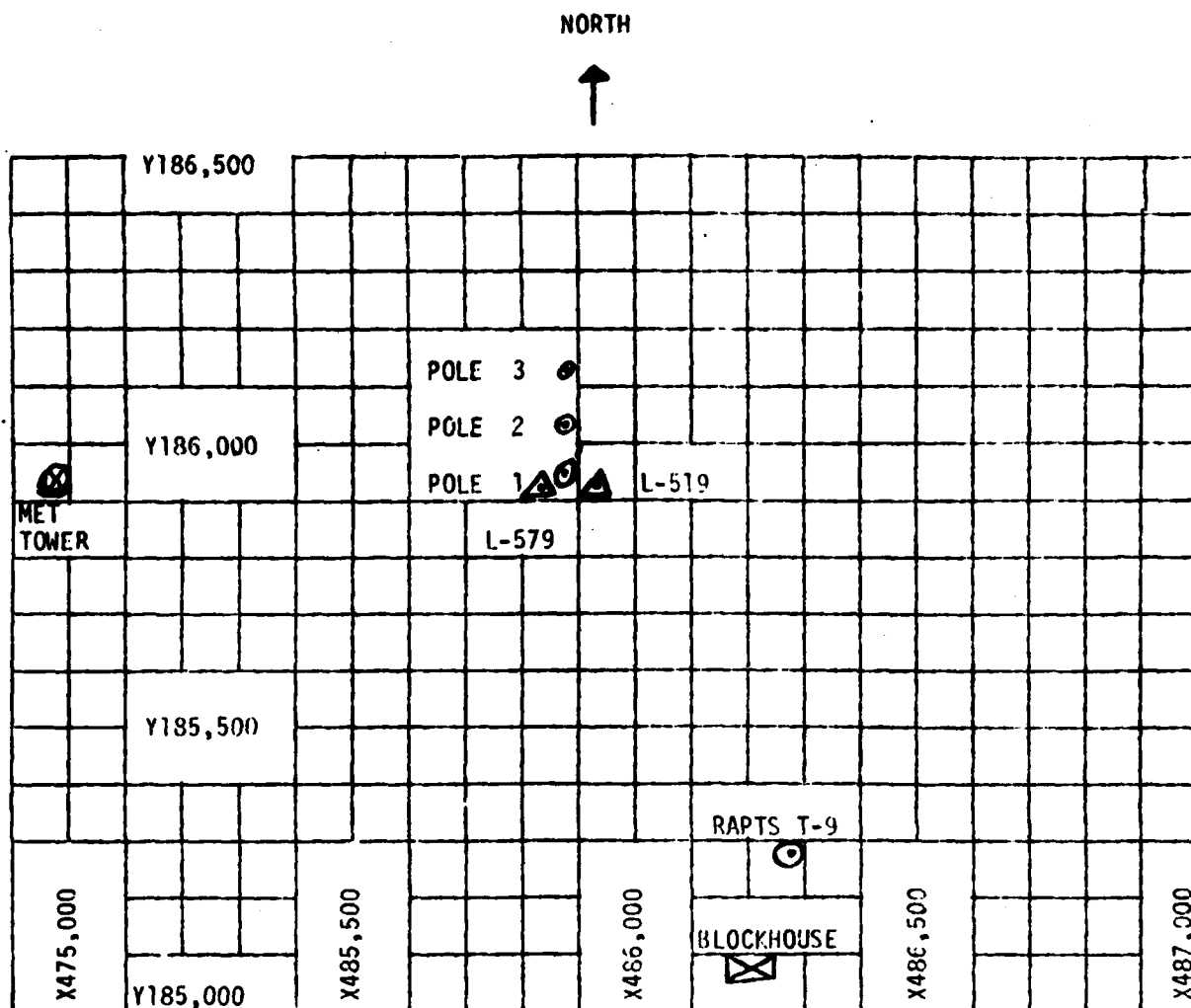
#### SITE AND ALTITUDE

LC-33 2Km  
Nick 2Km

(2) Air structure data (rawinsonde) were collected at the following Met Sites. Data were collected from surface to 35,000 feet in 500-foot increments.

#### SITE AND TIME

WSD 1550 MST



1. MET TOWER - 4 Bendix Model T-20 Anemometers at 12 ft, 62 ft, 102 ft, and 202 ft with E/A recorders.
2. POLE ANEMOMETER - Bendix Model T-120 with E/A recorders.
  - (a) Pole #1 - 38.7 ft.
  - (b) Pole #2 - 53.0 ft.
  - (c) Pole #3 - 83.6 ft.
3. RAPTS T-9 Radar Automatic Pilot-Balloon Tracking System T-9 Radar.



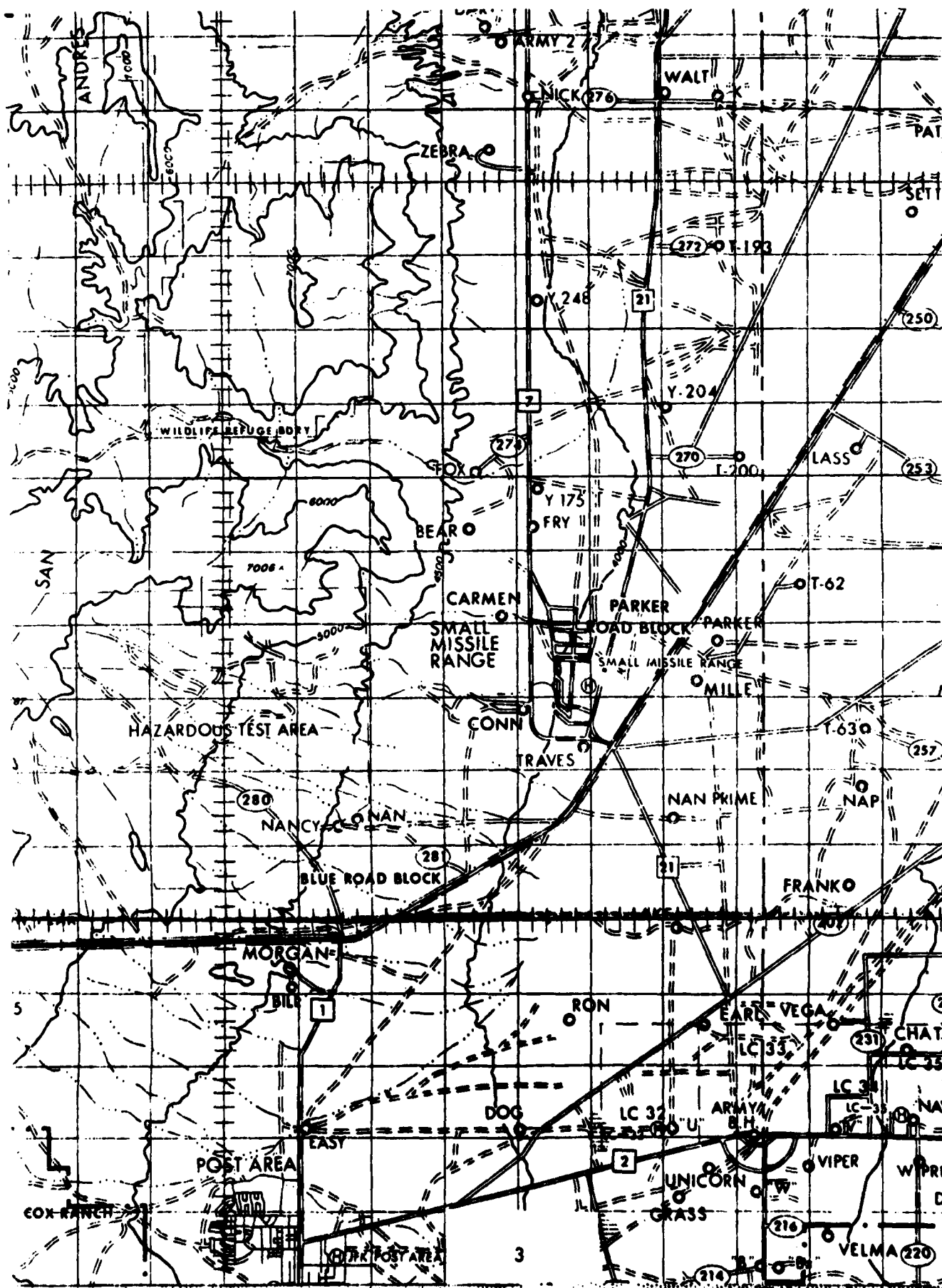


TABLE 1. Surface Observations taken at 1545 MST,  
07 December 1979, at LC-33, 19304A GSRS,  
Missile Number 1072 and 1124, Round Number  
V-94 and V-95.

ELEVATION	3977.30	FT/MSL
PRESSURE	879.5	MBS
TEMPERATURE	17.4	°C
RELATIVE HUMIDITY	22	%
DEW POINT	-4.6	°C
DENSITY	1051	GM/M <sup>3</sup>
WIND SPEED	05	KTS
WIND DIRECTION	118	DEGREES
CLOUD COVER	CLEAR	

TABLE 2 LC-33 FIXED POLE ANEMOMETER MEASURED WINDS

POLE #1 X485,874.29 Y185,958.90 H4018.74 38.7 ft. AGL			POLE #2 X485,874.93 Y186,012.00 H4033.57 53.0 ft. AGL			POLE #3 X485,877.29 Y186,116.06 H4063.92 83.6 ft. AGL		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
-30	156	04	-30	169	03	-30	147	03
-20	162	04	-20	163	03	-20	175	04
-10	158	03	-10	129	02	-10	180	03
0.0	138	03	0.0	135	02	0.0	171	02
+10	137	03	+10	130	03	+10	150	03

TABLE 3 LC-33 METEOROLOGICAL TOWER ANEMOMETER MEASURED WINDS (202 FT TOWER)

LEVEL #1, 12 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #2, 62 FEET X484,982.64, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
-30	123	02	-30	132	06
-20	117	04	-20	141	05
-10	118	05	-10	144	05
0.0	118	04	0.0	146	05
+10	117	03	+10	140	05

LEVEL #3, 102 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #4, 202 FEET X484,982, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
-30	136	05	-30	135	03
-20	143	05	-20	135	03
-10	143	05	-10	140	03
0.0	135	06	0.0	146	03
+10	133	05	+10	156	05

## PILOT BALLOON MEASURED WIND DATA

TABLE 4

RELEASED FROM LC-33 DATE 07 December 1979 TIME 1545 MST

TRACKER      COORDINATES (WSTM)      X= 486,037.24      Y= 182,350.16      H= 3977.30

NOTE: WIND DIRECTIONS ARE REFERENCED TO TRUE NORTH

HEIGHTS ARE METERS AGL XX OR FEET AGL       .

[illegible][illegible][illegible]

## PILOT BALLOON MEASURED WIND DATA

TABLE 5

RELEASED FROM NICK DATE 07 December 79 TIME 1557 MST

TRACKER COORDINATES (WSTM) X= 470,734.56 Y= 255,775.64 H= 4126.57

NOTE: WIND DIRECTIONS ARE REFERENCED TO TRUE NORTH

HEIGHTS ARE METERS AGL XX OR FEET AGL     .

[illegible][illegible][illegible]

GEODETIC COORDINATES  
32.40043 LAT DEG  
106.37033 LON DEG

SIGNIFICANT LEVEL DATA

3410020512

WHITE SANDS

TABLE 6

STATION ALTITUDE 9889.00 FEET MSL

7 DEC. 79 1550 HRS MST

ASCENSION NO. 512

PRESSURE GEOMETRIC ALTITUDE MILLIBARS MSL FEET	TEMPERATURE		REL. HUM. PERCENT
	AIR DEGREES	DEWPOINT CENTIGRADE	
880.2 9089.0	17.2	-4.7	22.0
850.0 8961.2	14.5	-7.5	21.0
772.8 7572.3	8.5	-10.9	24.0
740.8 8718.4	7.7	-9.6	28.0
707.0 10243.2	4.6	-11.0	31.0
622.8 13344.4	-2.2	-14.9	32.0
604.2 14141.0	-9.9	-16.7	29.0
500.0 19019.8	-10.5	-30.6	17.0
440.6 22177.5	-17.6	-37.3	16.0
400.0 24527.7	-24.2	-42.2	17.0
342.0 28207.2	-34.8	-50.6	18.0
312.8 30232.8	-40.7		
300.0 31164.7	-43.0		
285.2 32283.7	-44.6		
264.8 33907.2	-48.1		
250.0 35153.3	-49.0		

STATION ALTITUDE 3989.00 FEET MSL  
7 DEC. 79 1550 HRS MST  
ASCENSION NO. 512

UPPER AIR DATA  
3410020512  
WHITE SANDS

GEODETTIC COORDINATES  
32.40043 LAT DEG  
106.37033 LON DEG

TABLE 7

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (TN)	SPEED KNOTS	INDEX OF REFRACTION
3989.0	880.2	17.2	22.0	1034.1	604.4	150.0	4.1	1.000254
4000.0	879.9	17.2	22.0	1053.8	664.4	150.4	4.1	1.000254
4300.0	864.2	15.8	21.5	1040.2	662.8	167.0	4.6	1.000249
5000.0	848.8	14.4	21.0	1026.7	661.1	179.4	5.5	1.000245
5500.0	833.5	13.3	21.6	1012.2	659.8	188.2	6.5	1.000241
6000.0	818.4	12.1	22.2	998.0	658.5	197.0	6.4	1.000237
6300.0	803.6	11.0	22.8	984.0	657.1	207.0	6.2	1.000233
7000.0	789.1	9.8	23.3	970.2	655.8	229.6	3.4	1.000230
7300.0	774.8	8.7	23.9	956.6	654.4	295.0	2.6	1.000226
8000.0	760.7	8.2	25.5	940.6	653.9	300.2	3.0	1.000223
8300.0	746.8	7.9	27.2	924.5	653.5	298.1	3.5	1.000220
9000.0	733.1	7.1	28.6	909.8	652.7	281.0	5.0	1.000217
9300.0	719.6	6.1	29.5	896.4	651.5	271.3	6.3	1.000213
10000.0	706.4	5.1	30.5	883.1	650.3	261.8	7.3	1.000210
10500.0	693.5	4.2	31.1	869.5	649.3	250.9	8.6	1.000206
11000.0	680.5	3.4	31.2	855.7	648.3	241.0	10.1	1.000203
11500.0	667.6	2.7	31.4	842.2	647.4	234.9	11.0	1.000199
12000.0	655.2	1.9	31.6	828.8	646.5	230.0	11.8	1.000196
12500.0	642.9	1.1	31.7	815.7	645.6	231.1	11.0	1.000192
13000.0	630.9	.3	31.9	802.7	644.6	233.3	10.3	1.000189
13500.0	619.1	-.3	31.4	789.7	643.8	245.5	9.9	1.000185
14000.0	607.5	-.8	29.5	776.1	643.3	257.4	9.9	1.000182
14500.0	595.8	-1.6	28.1	763.7	642.3	263.4	10.4	1.000178
15000.0	584.4	-2.6	25.9	751.8	641.1	266.6	11.3	1.000174
15500.0	573.2	-3.6	25.7	740.1	639.9	260.0	14.2	1.000171
16000.0	562.2	-4.6	24.4	728.6	638.7	255.3	17.0	1.000168
16500.0	551.4	-5.5	23.2	717.3	637.5	251.0	19.5	1.000165
17000.0	540.8	-6.5	22.0	706.1	636.3	248.3	21.2	1.000162
17500.0	530.4	-7.5	20.7	695.2	635.1	247.4	21.1	1.000159
18000.0	520.2	-8.5	19.5	684.4	633.9	247.1	20.9	1.000156
18500.0	510.2	-9.5	18.3	673.8	632.7	247.7	20.8	1.000153
19000.0	500.4	-10.5	17.0	663.4	631.5	246.1	21.1	1.000150
19500.0	490.5	-11.6	16.8	653.0	630.2	243.0	21.7	1.000148
20000.0	480.8	-12.7	16.7	642.8	628.8	240.7	21.3	1.000145
20500.0	471.2	-13.8	16.5	632.8	627.4	238.4	20.6	1.000143
21000.0	461.9	-15.0	16.4	623.0	626.1	239.4	20.3	1.000141
21500.0	452.7	-16.1	16.2	613.3	624.7	240.5	20.2	1.000138
22000.0	443.7	-17.2	16.1	603.8	623.3	240.1	21.4	1.000136
22500.0	434.8	-18.5	16.1	594.7	621.7	239.7	22.2	1.000134
23000.0	425.9	-19.9	16.3	585.8	620.0	239.5	21.3	1.000132

GEODETIC COORDINATES  
32.40043 LAT DEG  
106.37033 LONG DEG

UPPER AIR DATA  
3410020512  
WHITE SANDS

TABLE 7 (CONT)

STATION ALTITUDE 3989.00 FEET MSL  
7 DEC. 79 1500 HRS MST  
ASCENSION NO. 512

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION (DEGREES TRUE) SPEED KNOTS	INDEX OF REFRACTION
23500.0	417.3	-21.3	16.6	517.1	618.3	239.6	1.000130
24000.0	409.8	-22.7	16.8	568.5	616.6	241.0	1.000128
24500.0	400.5	-24.1	17.0	550.1	614.8	243.1	1.000126
25000.0	392.0	-25.6	17.1	551.5	613.0	246.7	1.000124
25500.0	383.8	-27.0	17.3	543.1	611.2	250.8	1.000122
26000.0	375.7	-28.4	17.4	534.8	609.5	255.5	1.000120
26500.0	367.8	-29.9	17.5	526.6	607.7	258.6	1.000118
27000.0	350.0	-31.3	17.7	518.6	605.9	259.8	1.000116
27500.0	352.5	-32.8	17.8	510.7	604.0	257.0	1.000114
28000.0	345.0	-34.2	17.9	503.0	602.2	248.7	1.000112
28500.0	337.6	-35.7	15.4**	495.2	600.4	240.2	1.000111
29000.0	330.3	-37.1	11.0**	487.4	598.5	232.6	1.000109
29500.0	323.1	-38.6	6.5**	479.8	596.7	228.6	1.000107
30000.0	316.0	-40.0	2.1**	472.2	594.8	228.8	1.000105
30500.0	309.1	-41.4		464.5	593.1	229.0	1.000103
31000.0	302.2	-42.6		456.7	591.5	229.3	1.000102
31500.0	295.5	-43.5		448.2	590.4	228.1	1.000100
32000.0	288.9	-44.2		439.5	589.5	223.9	1.000098
32500.0	282.4	-45.1		431.3	588.4	221.3	1.000096
33000.0	276.0	-46.1		423.6	587.0	220.6	1.000094
33500.0	269.8	-47.2		416.0	585.6		1.000093
34000.0	263.7	-48.2		408.3	584.3		1.000091
34500.0	257.7	-48.5		399.6	583.9		1.000089
35000.0	251.8	-48.9		391.1	583.4		1.000087

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.



STATION ALTITUDE 3989.00 FEET MSL  
7 DEC. 79  
ASCENSION NO. 512

MANDATORY LEVELS  
3410020512  
WHITE SANDS

TABLE 8

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM.		WIND DATA	
MILLIBARS	FEET	AIR DEGREES CENTIGRADE	DEWPOINT	PERCENT	DIRECTION DEGREES(TN)	SPEED KNOTS	
850.0	4958.	14.5	-7.5	21.	178.5	5.4	
800.0	6525.	10.7	-9.6	23.	210.4	5.5	
750.0	8377.	7.9	-10.0	27.	303.5	5.2	
700.0	10233.	4.6	-11.0	31.	257.5	7.9	
650.0	12203.	1.6	-13.5	32.	230.4	11.5	
600.0	14307.	-1.3	-17.1	29.	261.2	10.2	
550.0	16564.	-5.7	-23.4	23.	250.4	19.9	
500.0	18903.	-10.5	-30.8	17.	246.0	21.1	
450.0	21623.	-16.4	-36.2	16.	240.4	20.5	
400.0	24487.	-24.2	-42.2	17.	243.2	18.1	
350.0	27624.	-33.2	-49.4	18.	254.4	12.7	
300.0	31103.	-43.0			229.4	17.6	
250.0	35077.	-49.0					